

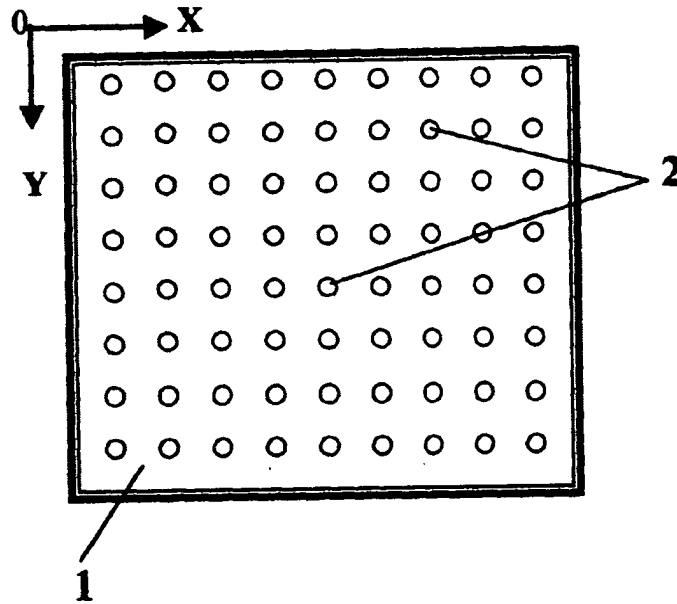
**Fig.1**

**Periodic test-object orientation on the microscope stage.**

1. is the microscope frame(field of view);

2. are the diffraction grating strip images.

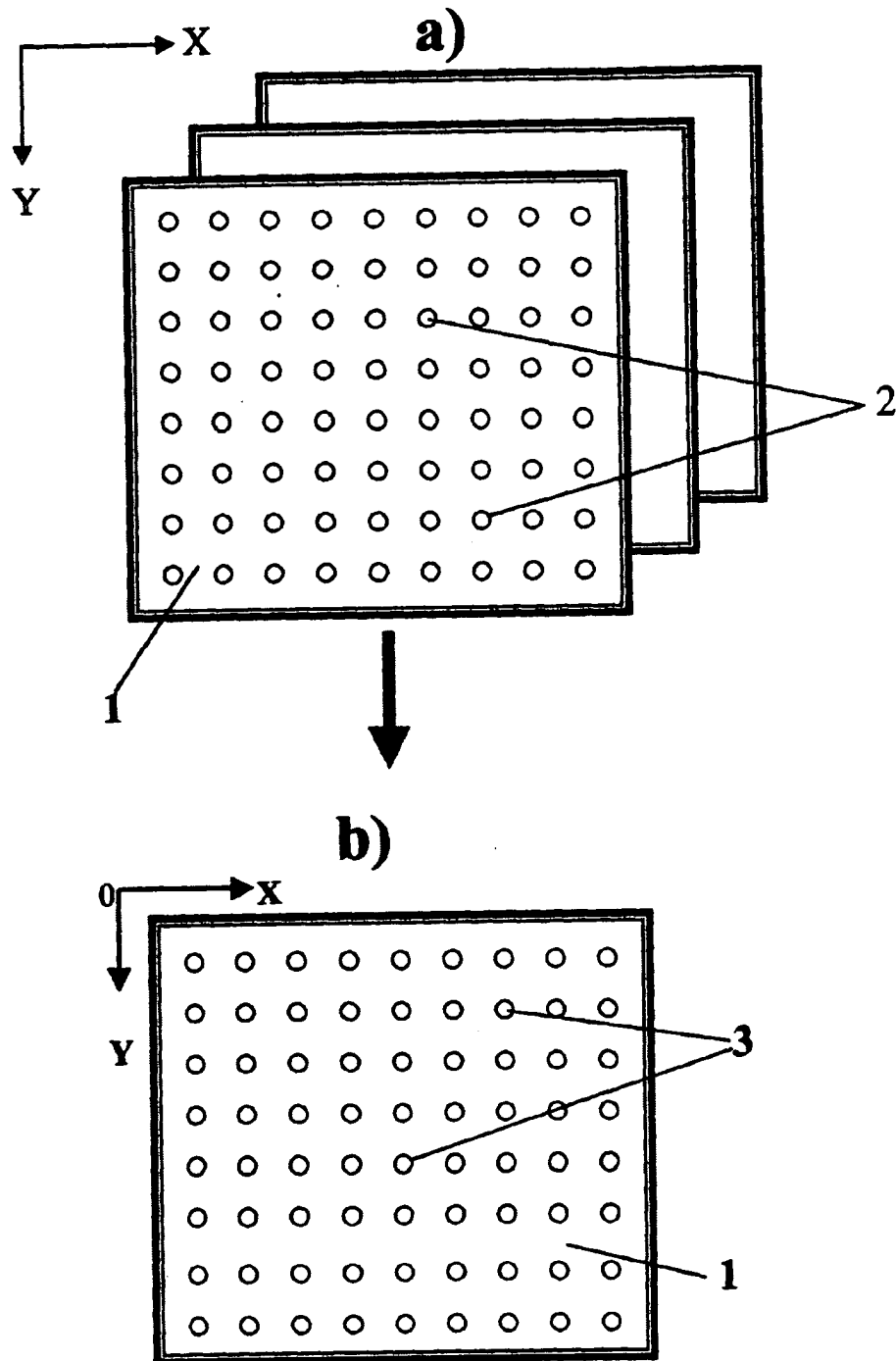
The arrow at the top of the frame indicates the line scan direction.



**Fig.2**

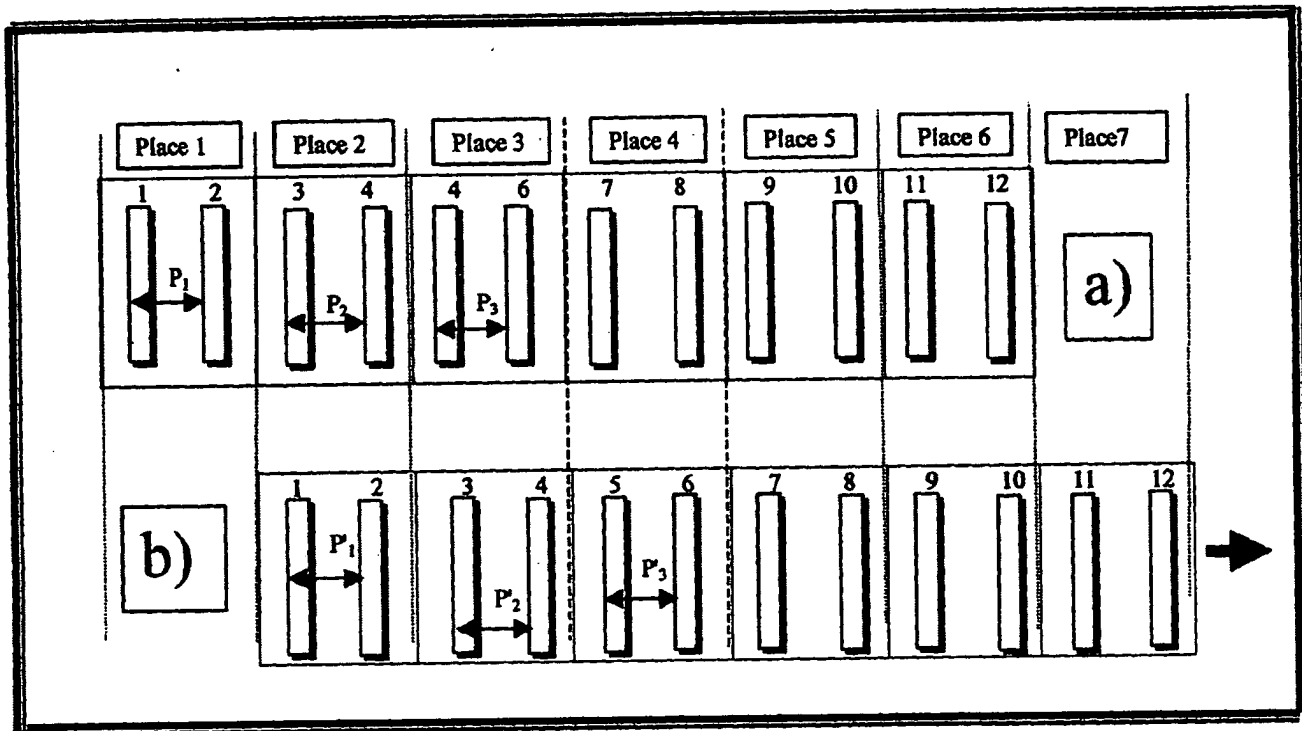
**Two-dimensional array of signal values.**

- 1. is the microscope field of view;
- 2. are the individual signal values at places with coordinates X and Y.



**Fig.3**  
**The procedure of arrays averaging.**

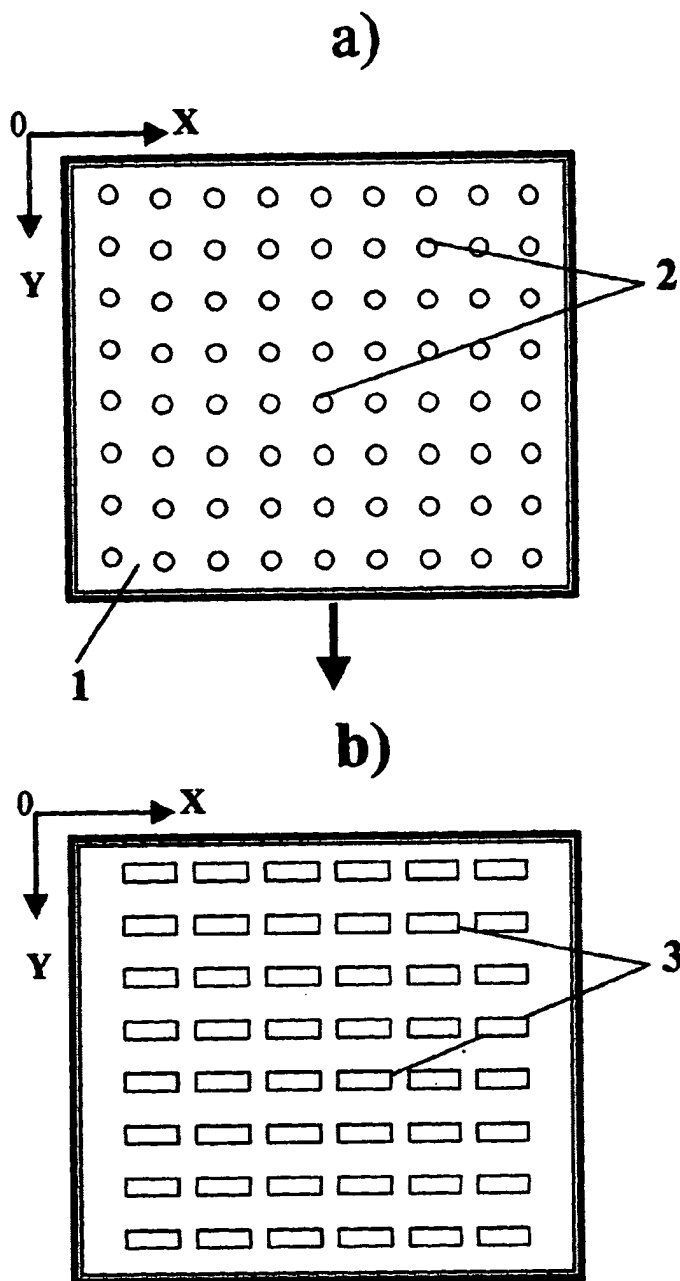
- a) is the set of initial two-dimensional signal arrays;  
b) is the averaged two-dimensional signal array;  
1. is the microscope field of view; 2. are the signal values in the initial two-dimensional arrays; 3. is the signal values in the averaged two-dimensional array.



**Fig.4**

Shift of the diffraction grating image in the microscope field of view according to Claim 1.e.

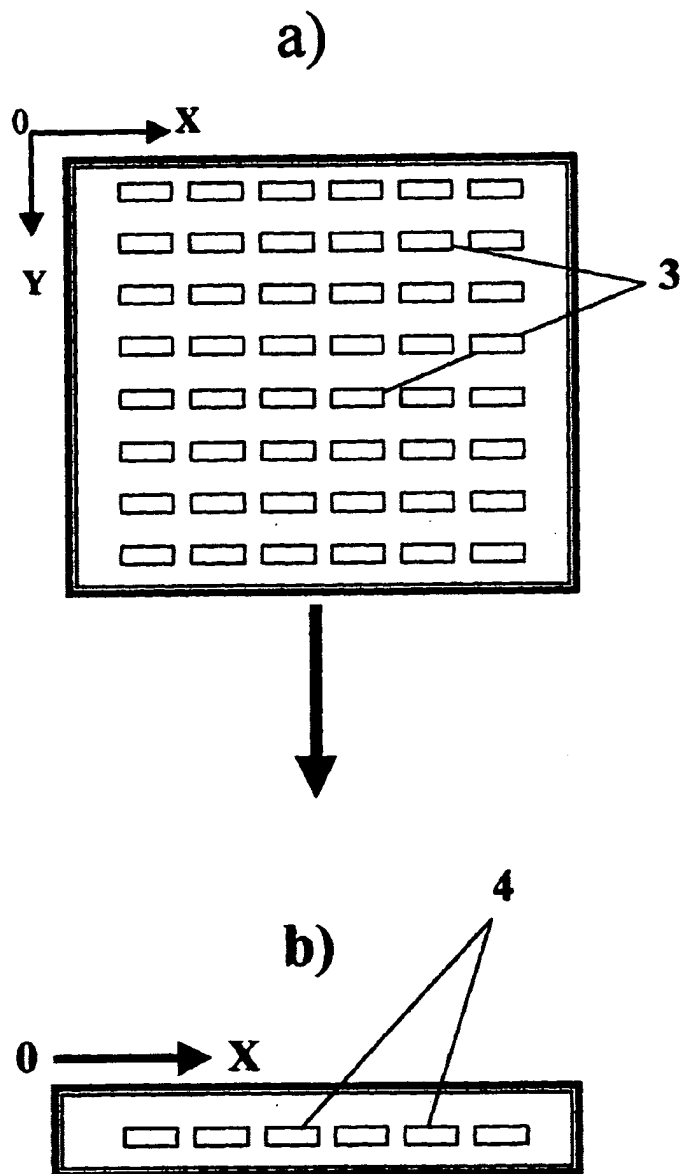
Row a) is the initial grating image; row b) is the image of shifted grating. The arrow at bottom right indicates the shift direction.



**Fig.5**

Transformation of two-dimensional individual signal values array (a) into two-dimensional individual pitch values array (b).

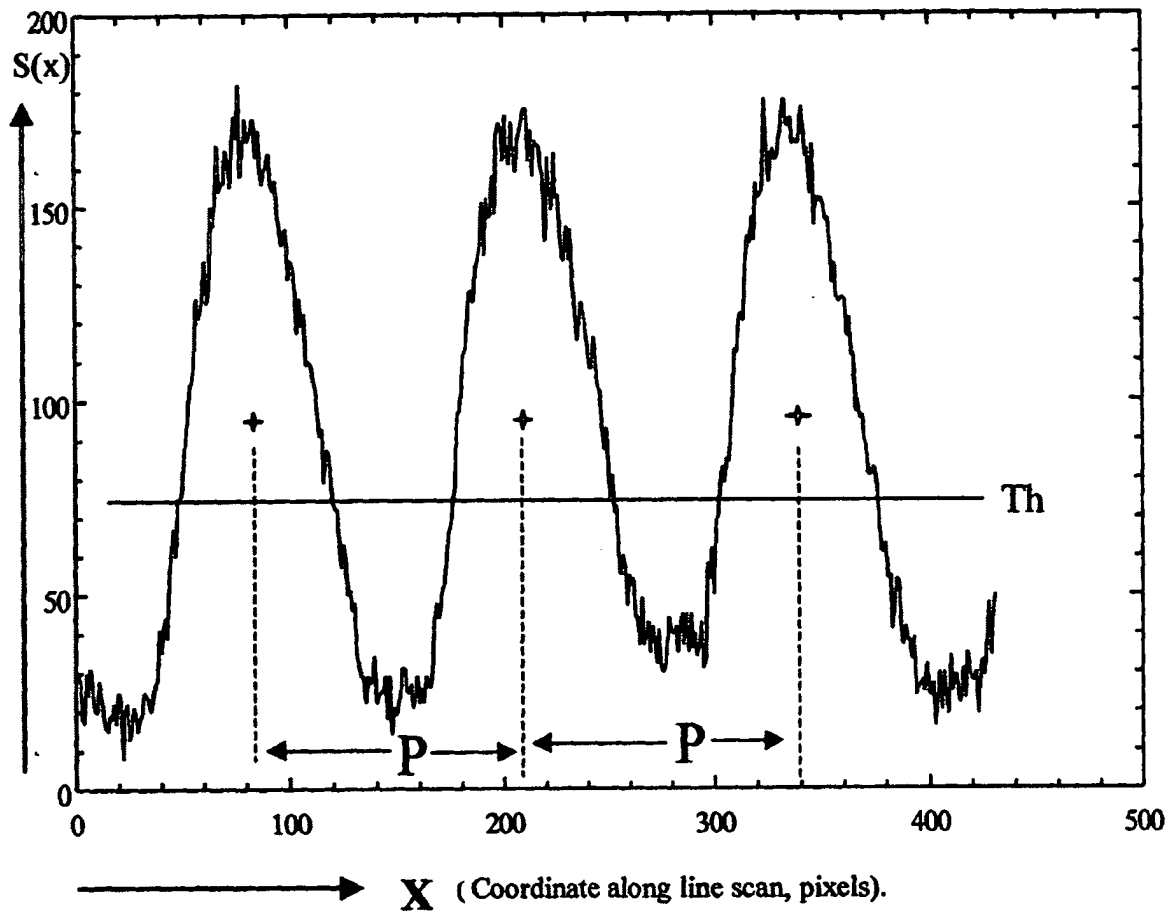
1. is the microscope field of view;  
 2. are the individual signal values; 3. are the individual pitch values.



**Fig.6**

Transformation of the two-dimensional individual pitch values array (a) into one-dimensional mean pitch values profile (b).

- 3. are the individual pitch values;
- 4. is the mean pitch values profile obtained by averaging of individual pitch values along Y-direction.

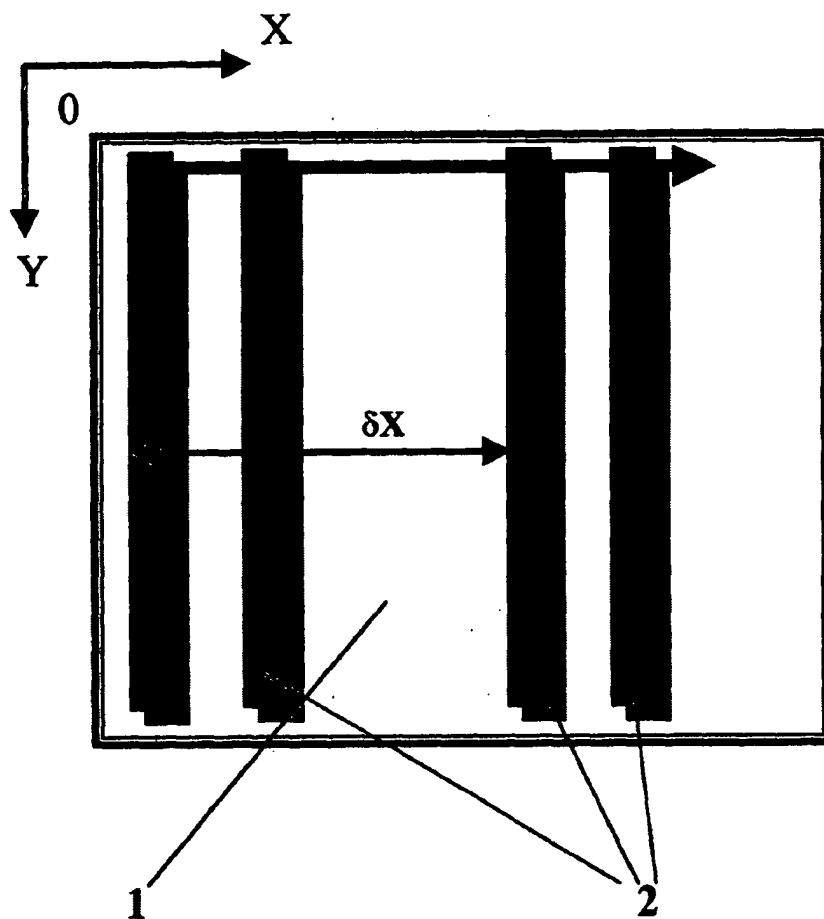


**Fig.7**

Signal cutting off by threshold ( $Th$ ).

The solid curve represents the dependence of video-signal  $S(x)$  plotted against coordinate  $X$  along line scan.

The sign  $+$  indicates the position of the Centres of mass of signal "islands".



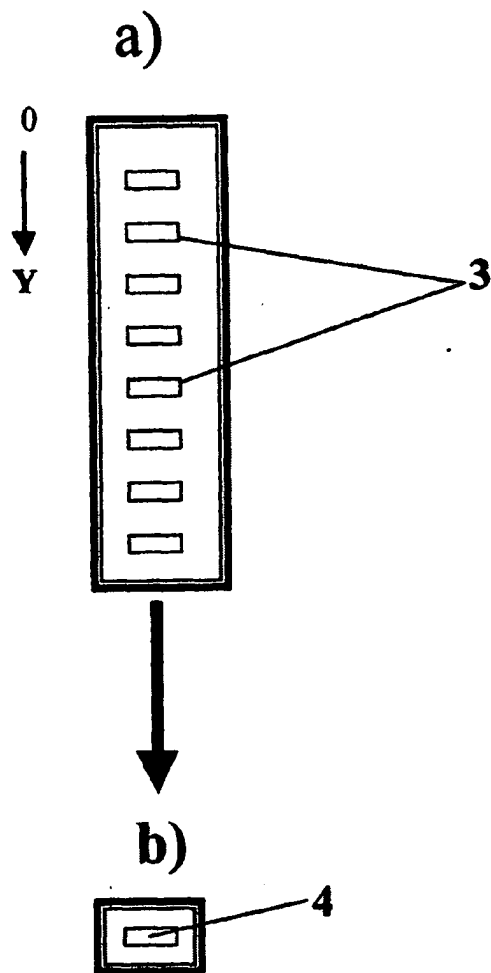
**Fig.8**

**Shift of the strip pair across microscope field of view  
according to Claim 7.**

The arrow at the top of frame indicates the shift direction; the arrow  
at the frame middle indicates the shift magnitude  $\delta X$ .

1 is the microscope frame(field of view);  
2 are the test-object strips images.

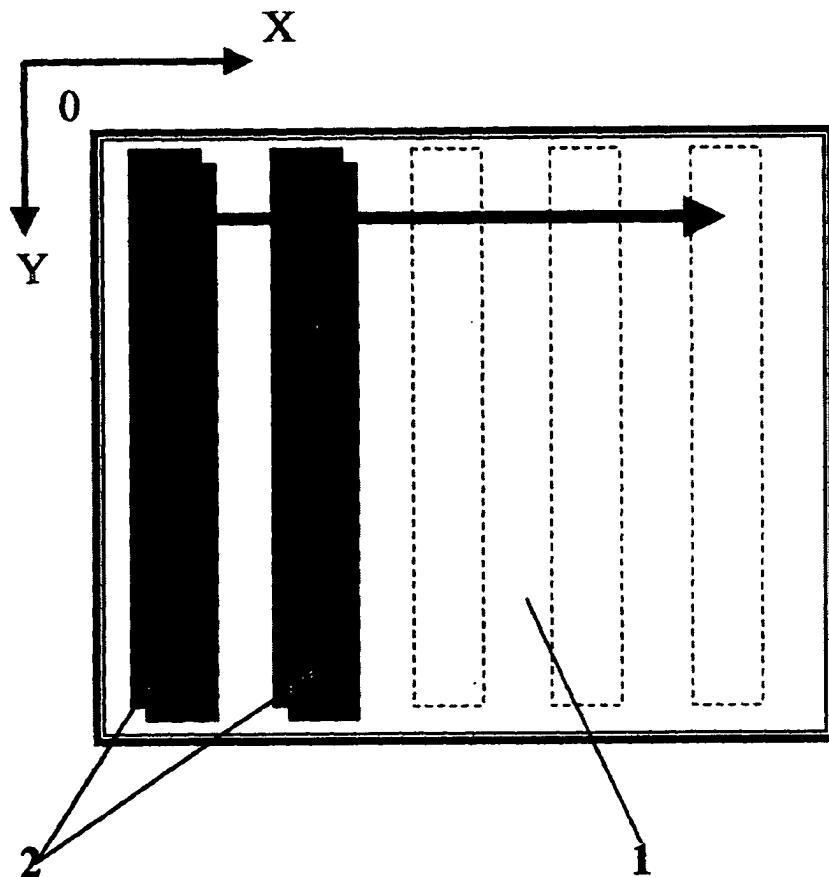




**Fig.9**

Transformation of the one-dimensional individual pitch values array (a) into mean pitch value (b) according to Claims 5d and 5h.

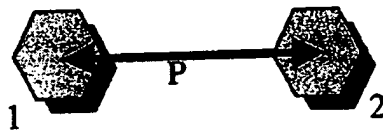
3. are the individual pitch values versus coordinate Y; 4. is the mean pitch value obtained by averaging of individual pitch values along Y-direction.



**Fig.10**

**Test-object geometry according Claim 7 and its orientation on the microscope stage.**

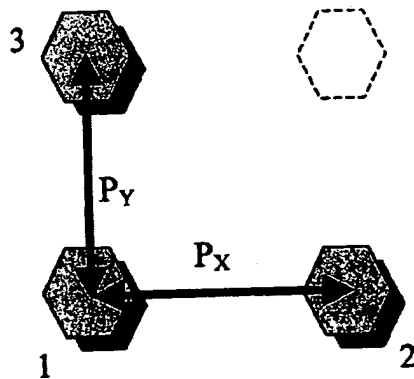
1 is the microscope frame (field of view);  
2 are the test-object strips images.  
The arrow at top of the frame indicates the line scan direction.



**Fig.11**

Geometry of the test-object according Claim 10.

P is the distance between features 1 and 2 i.e. pitch value.



**Fig.12**

Geometry of the test-object according Claim 11.

$P_X$  is the distance between features 1 and 2 i.e. the pitch value along X-axis;  
 $P_Y$  is the distance between features 1 and 3 i.e. the pitch value along Y-axis.

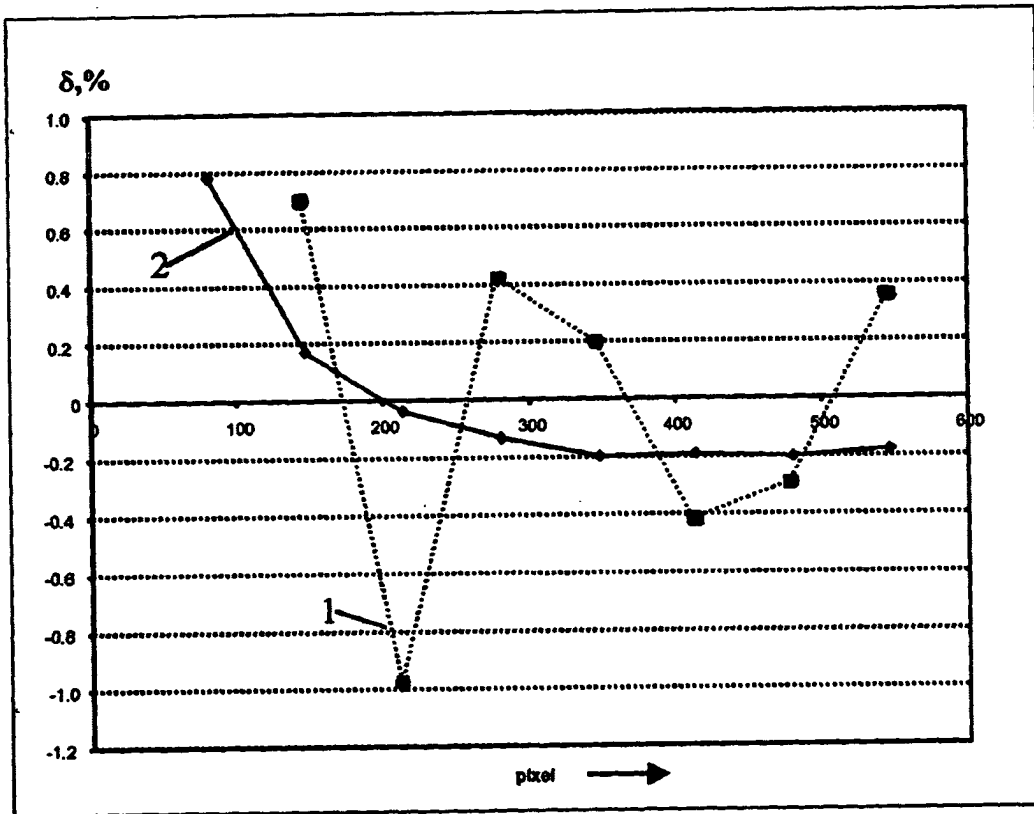
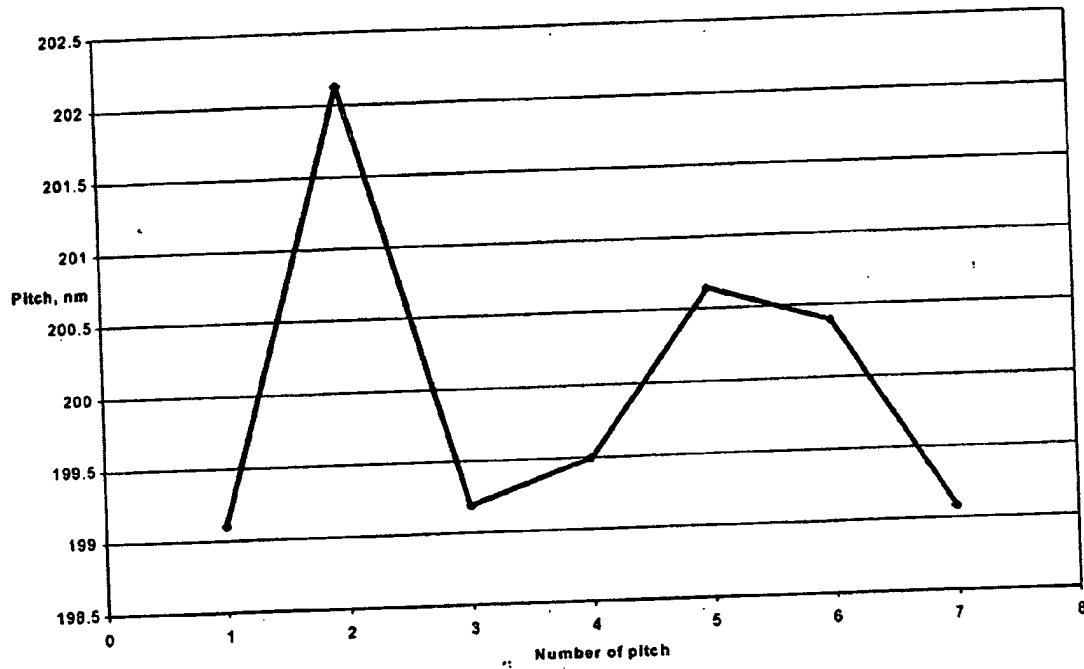


Fig.13.

The comparison of apparent (1) and true (2) scan non-linearity of the attested SEM. The  $\delta$  (percents) plotted along Y is showing how much real local magnification differs from average one.



**Fig.14.**  
The Sample non-uniformity